

Notice of Allowability

Application No.

10/619,521

Examiner

Tod T. Van Roy

Applicant(s)

DENG ET AL.

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to an after final amendment filed 04/11/2007.
2. ☒ The allowed claim(s) is/are 47, 48, 50-55 and 57-68.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

Response to Amendment

The examiner acknowledges the amending of claims 50-52, 57-59, 62, and 64.

Allowable Subject Matter

Claims 47-48, 50-55, and 57-68 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 47-48, 50-55, 57-60, 62, and 64 are allowable for their limitations directed towards the function, and location, of the described reliability enhancing layers (RELs) and respective defect sources found in VCSEL devices.

With respect to claims 47 and 54, a VCSEL device having a defect source and including a REL positioned within the defect source in order to reduce migration of defects vertically towards the active region was not found to be taught in the prior art.

Claims 67 and 68 are allowable as they depend from claims 47 and 54.

With respect to claims 48 and 55, a VCSEL device wherein two RELs are used to sandwich a defect source, preventing defect-induced degradation of the active region was not found to be taught in the prior art.

With respect to claims 50 and 57, a VCSEL device wherein a strained defect source is offset via a strained REL configured to balance the strain of the defect source was not found to be taught in the prior art.

Claims 61 and 63 are allowable as they depend from claims 50 and 57.

Claims 51 and 58 are allowable as they contain largely the same limitations as claims 50 and 57, including the strain types.

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Claims 52 and 59 are allowable as they contain largely the same limitations as claims 50 and 57, including material and strain types.

With respect to claims 53 and 60, a VCSEL device wherein a REL is positioned, and strained, to reduce defect degradation of the active region from a defect source creating a concentration gradient inducing defect migration, was not found to be taught in the prior art.

Claims 65 and 66 are allowable as they depend from claims 53 and 60.

Claims 62 and 64 are allowable as they contain largely the same limitations as claims 50 and 57, and the REL is within the defect source.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

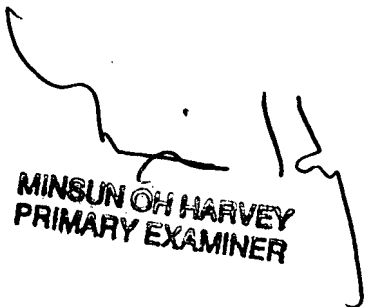
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TVR


MINSUN OH HARVEY
PRIMARY EXAMINER